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ABSTRACT

This report examined enrollment projections for higher education institutions in California in relation to earlier projections conducted in the mid-1990s that forecasted steep declines in enrollment. It notes that California's remarkable economic recovery over the last several years has allowed it to fund higher education enrollment growth at a rate that has surpassed many of the projections extant in 1995. The report explains that recent projections made by the California Department of Finance and the higher education segments (the University of California, California State University, and California Community College systems) are now much more consistent with the California Postsecondary Education Commission's baseline projections than the department's and the segments' estimates were 3 years ago. It is maintained that the actual increases in enrollment during the past few years and the recent projections of an enrollment surge of 538,000 students by 2005-06 have implications of tidal wave proportions. It is concluded that this re-examination of enrollment projections has reconfirmed earlier findings that segmental policies have a significant influence on enrollment patterns for the other segments, and have an immense effect on perceived levels of student demand. (MDM)

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TIDAL WAVE II REVISITED

A Review of Earlier Enrollment Projections For California Higher Education

By

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September 1998

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Introduction

It has been three years since a panel of experts completed its independent review of higher education enrollment projections in California. The review, *Tidal Wave II: An Evaluation of Enrollment Projections for California Higher Education*, was supported by the California Higher Education Policy Center and was released in 1995. Since that time, much has changed in California. The economy has greatly improved, tuition has declined, and high school students, in greater numbers, are preparing themselves for college. In light of these and other changes, the National Center for Public Policy and Higher Education, in the summer of 1998, reconvened the same panel of experts to reassess the enrollment projections in order to determine if the estimates have been reliable sources for planning, and if the forecasts for the long-term have been revised. The panel's recent charge was similar to its charge in 1995: to offer its best advice on the levels of enrollments that should be anticipated, consistent with California's historic policy of assuring higher education opportunity for those who are motivated and qualified.

The conclusions are described in this report. The panel found that the enrollment projections it recommended and outlined in 1995 have been a reliable guide for planning in California—that the underlying assumptions on which the projections were based were solid. Indeed, current enrollment is slightly higher than projected. The recent findings reinforce the panel's original conclusion that enrollment projections are driven by state policy decisions and by the opportunities that California's colleges and universities provide. The panel provides evidence that the students of Tidal Wave II are beginning to enroll in California colleges. The panel also makes recommendations about how to strengthen enrollment projections for future planning.

The National Center would like to thank the expert panel for their work in this area. Panel members include: David Breneman, University Professor and Dean of the Curry School of Education at the University of Virginia, Leobardo Estrada, Professor in the Graduate School of Public Policy and Social Research at UCLA, and Gerald Hayward, Director of Policy Analysis for California Education (PACE). The report was funded by The James Irvine Foundation.

The National Center welcomes the reactions of readers.

Joni E. Finney

Vice President

National Center for Public Policy and Higher Education

Executive Summary

Several important findings emerge from this update concerning enrollment projections for public higher education in California:

First and most importantly, California's remarkable economic recovery has allowed the state to fund higher education enrollment growth at a rate that has surpassed many of the projections extant in 1995. Actual enrollment levels through 1997 increased at a pace slightly higher than anticipated. The projections originally selected by the panel—the 1994 baseline undergraduate enrollment projections made by the California Postsecondary Education Commission (CPEC)—are slightly *below* actual enrollment levels through 1997. The CPEC figures, however, are closer to the actual figures than are the other projections available in 1995.

Secondly, recent projections made by the Department of Finance and the higher education segments are now much more consistent with CPEC's baseline projections than the department's and the segments' estimates were three years ago. Moreover, the new estimates are *higher* than CPEC's 1994 baseline figures. The Department of Finance, in updating its projections in 1997, now estimates the total increase in enrollments in public higher education to be about 538,000 from 1994-95 to 2005-06. In 1994 CPEC estimated the total increase to be about 488,000 students. UC projections similarly show a growth rate that is close to, but slightly higher than the CPEC 1994 baseline projections. The community colleges' latest projections have also drawn closer to CPEC's 1994 figures, though the colleges' estimates are still higher by about 73,000 students. CSU has not updated its projections. CPEC is expected to update its projections and reconsider its methodology in 1999.

The actual increases in enrollment during the past few years and the recent projections of an enrollment surge of 538,000 students by 2005-06 have implications of tidal wave proportions. Enrolling so many new students in a state that is unlikely to build large numbers of new campuses is a formidable task that will require significant state planning and support, increased segmental efficiencies and productivity, and increased contributions from parents and students. If these additional students are not provided the opportunity to enroll, then the Master Plan's commitment to

educational opportunity will no longer to be a reality.

A recent report by the Legislative Analyst's Office and this re-examination of state higher education enrollment have reaffirmed the panel's original findings that differences in enrollment projections are largely driven by the underlying assumptions made by those creating the projections. As a result, enrollment projections are sometimes less an indicator of expected student demand than they are a method of controlling enrollment changes and examining the availability of access in California higher education. The major differences between the UC and CPEC enrollment projections three years ago involved assumptions about participation rates and the pool of high school students. Participation rates in the university have in fact improved steadily since bottoming out in 1993. The decline in the numbers of high school graduates has also bottomed out.

Finally, this re-examination of enrollment projections has reconfirmed the panel's earlier finding that segmental policies have a significant influence on enrollment patterns for the other segments, and have an immense effect on perceived levels of student demand.

Background

In 1995, the California Higher Education Policy Center asked us to serve as an expert panel to review and evaluate the several conflicting California higher education enrollment projections that were then extant. Our purpose was to recommend to the Center the most plausible forecast of future demand for undergraduate education. We adopted and explicitly stated a basic assumption: we would favor a set of assumptions that most clearly identified the level of educational service needed to meet the goals of California's landmark 1960 Master Plan. The Master Plan had as a basic tenet a commitment that there would be a place in a state college or university for every qualified student. We believed then, and reaffirm now, that higher education planners should base policy recommendations on projections that reflect a continuing commitment to access, broadly conceived. This is not a trivial point, since such assumptions, as we pointed out in our earlier paper, drive the enrollment projections. Having clearly stated our preferences, we were also pointedly aware of the condition of the California economy at the time, for we had seen, first-hand, severe reductions in access: meteoric rises in fees, slashes in course offerings, dramatic declines in enrollments (particularly in the community colleges). In light of California's economic conditions in 1995, we also sought the most plausible estimate that was consistent with the reductions of the prior five years yet that did not lock in place a set of assumptions that would fail to accommodate access in the future. We determined that if the economy stayed in the doldrums or continued to worsen, then this second, lower threshold might be closer to reality.

It bears repeating that the panel did not find acceptable:

any set of forecasts that assume unalterable supply constraints in the educational delivery system or priorities set by the state's public colleges and universities. We view any set of assumptions which would exclude hundreds of thousands of qualified young Californians from higher education to be morally, politically and economically unacceptable.¹

We believed then, and reaffirm now, that higher education planners should base policy recommendations on projections that reflect a continuing commitment to access, broadly conceived.

We collected every recent enrollment projection from as many sources as we knew (nine in all), interviewed those responsible for the projections, conferred amongst ourselves and with others, and concluded that the baseline enrollment projections of the California Postsecondary Education Commission (CPEC) more closely matched our more optimistic scenario.² CPEC's low alternative projection more nearly satisfied our second set of circumstances.

California: The Changing Context

Three years have now passed since the original work by the panel, and these years produced startling changes in the state's fortunes. Higher education policy in the first half of this decade was marked by severe budgetary constraints that resulted in significant reductions in enrollment in California's three higher education segments: the University of California (UC), the California State University (CSU), and the California Community Colleges (CCC). The severe budget cuts were accompanied by declines in student financial aid, increases in student fees and a huge growth in student loans.

Total undergraduate enrollment declined by over 200,000 students (10.6%) from 1991 to 1995. Although all three segments were affected, the magnitudes and length of the decline varied. The University of California dropped the least; from the high point in 1991 to the low point in 1994, enrollment declined by almost 3,500 undergraduate students (2.8%). The enrollment decline at California State University began in 1990 and by 1994 totaled some 35,000 students (11.9%). Enrollment at the community colleges declined by 179,000 (11.8%) in the three years from 1991 to 1994.³

During this time, student fees were increased at an alarming rate to partially offset the loss of revenue, but this only exacerbated the access problem. The staggering economy created a fiscal squeeze that dramatically slowed and in some cases actually reversed the state's net in-migration pattern. The Department of Finance Demographic Research Unit lowered its projected numbers of high school graduates each year during that period as the expected in-migration to California failed to materialize. This was reflected in smaller cohorts than originally projected for virtually every year during the first half of the 1990s.

The policy discussion throughout this period focused on the bleak prospect that given the deteriorating economy, California's higher education system was in serious jeopardy. The state could not maintain its historic commitment to access under the constant onslaught of competing demands from other social services—health and welfare, childcare, K-12 education, and prisons among them.

The four-year segments were understandably relieved when the governor entered into a four-year "compact" with them to provide a modest, but "guaranteed" 2% general fund increase in the first year (1995-96) and a 4% annual budget increase for each of the three subsequent years. This compact was designed to stem the tide of reductions and provide a "framework for budgetary stability."⁴ The agreement provided for enrollment growth of 1% annually, increases in student aid, and some modest productivity gains.

At the same time that the economy was reeling, student aspirations for higher education were apparently increasing. High school students were dropping out less, getting better grades, enrolling in college preparatory courses in greater numbers, taking more college placement tests, and successfully completing more advanced placement courses. In sum, aspirations were rising at the same time the paths to access were constricting.

What a difference a surging economy makes. In 1994-95 the recovery had just begun, but even the most optimistic scenarios did not foresee the kind of recovery that California has recently enjoyed. By 1998, California was awash with dollars and options. In the course of those three years the California economy rebounded so startlingly that the budget debate centered not on reductions this year, but on what to do with the second largest surplus in the state's history. The recurring policy split—whether excess revenue ought be used for tax reductions or increases in government services—was resolved when the parties agreed there were enough resources to do both.

Tidal Wave II Revisited

Given these tumultuous recent changes, the newly formed National Center for Public Policy and Higher Education asked the panel to reconvene—not to review with the same level of detail the particulars of the various projections, but to arrive at some notion of where projected enrollments now stand. Had the economic downturn that dominated the first half of the decade significantly altered the context in which the earlier projections were made? Had the economic recovery, which appears to be the theme for the second half of the decade, allowed California to rekindle the access flame? Were the CPEC baseline projections the panel initially agreed upon still reasonable, or had they been rendered obsolete by radically changing conditions?⁵ Were their segments and the two state agencies coming closer in their projections or were the differences exacerbated? What recommendations might the panel make about the general state of these projections?

The Original Projections—and Their Assumptions

In 1994, CPEC provided projections of enrollments to the year 2005 for all public college and university segments. CPEC uses an actuarial projection model that

embodies student flows within each of the four-year segments and is based on tracking individual students until they complete their education. This methodology is resource intensive and therefore completed only periodically, not annually. For UC and CSU, CPEC begins with estimates of first-time freshmen (based on the estimates of high school graduates from the Department of Finance and estimates of participation rates) and transfer students (based on its own projections on community college enrollments). The flow of students from entry through departure is simulated to estimate continuation, attrition and graduation rates. For the community colleges, participation rates are

used to estimate enrollments, with projections based on historical patterns of age-specific and racial/ethnic-specific enrollments by the corresponding California adult cohort.

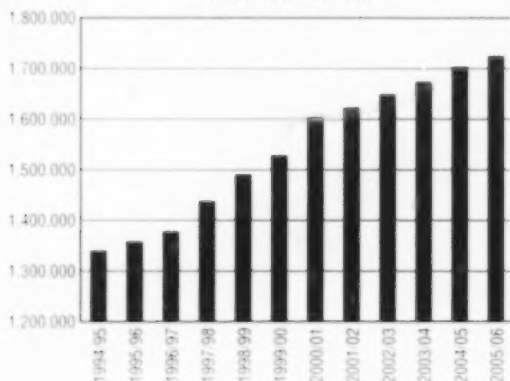
CPEC provides two separate projections, a “baseline” projection and a “low alternative” projection. The major differences between them can be traced to differences in the expected rate of change in participation rates.

Table 1
CPEC's 1994 Enrollment Projections: Undergraduates

Baseline Projections				
Year	CCC	CSU	UC	Total
1994-95	1,337,085	261,508	123,873	1,722,466
1999-00	1,525,501	277,894	131,551	1,934,946
2005-06	1,722,170	335,396	152,930	2,210,496
Growth to 2005-06	385,085	73,888	29,057	488,030
Low Alternative Projections				
Year	CCC	CSU	UC	Total
1994-95	1,335,800	259,979	119,975	1,715,754
1999-00	1,457,024	265,706	123,983	1,846,713
2004-05	1,604,397	300,254	141,169	2,045,820
2005-06	1,633,986	308,267	144,169	2,086,422
Growth to 2005-06	298,186	48,288	24,194	370,668

Source: CPEC, California Public College and University Enrollment Demand 1994-2005

Figure 1
CPEC Baseline: CCC



Comparing the 1994 Projections to Today's Reality

The first level of questions about the status of the projections concerns examining whether or not the projections match the short-term actual enrollments. This, of course, is hazardous, for the projections may be close, but for the wrong reasons. Table 2 compares actual undergraduate enrollments since 1994 with the CPEC baseline projections. For each segment, the actual enrollment in the most current year is very close and slightly higher than CPEC's 1994 baseline projections.

University of California

The most recent undergraduate enrollment level at UC is slightly higher (by only 0.4%) than the CPEC baseline projection. Over the four-year period, the average enrollment was slightly lower (by -0.73%) than projected.

California State University

In the most recent year, CSU's actual undergraduate enrollments exceed those projected by CPEC by over 7,000 students (2.7%). The average difference between actual and projected undergraduate enrollments over the four years was 1.43%.

California Community Colleges

The community colleges had the greatest year-to-year variation in enrollments. The actual enrollments in the most current year, however, are quite close and slightly higher (by 1.3%) than CPEC projected in 1994. For the community colleges, the average difference between actual and projected enrollments over the four years was 0.91%.

Summary

The projections selected by the panel (CPEC baseline) in 1995 closely approximate actual enrollments through 1997. They are closer than the other projections the panel might have chosen. Actual enrollments increased at a pace slightly higher than originally projected.

Accounting for the Growth

The remarkable resurgence of the California economy in the later half of the 1990s allowed state policymakers the luxury of fulfilling the essential commitment of the Master Plan. Absent the economic turn-around, the more pessimistic scenarios assuredly would have been closer to reality. Segments would have responded by reducing access even further in spite of all the cries of agony that may have ensued. This report would have featured an analysis of the access-gap and sounded the alarm for additional funds to close it. CPEC's baseline analysis, which was based on important assumptions consistent with the Master Plan would have been valuable, not so

Figure 2
CPEC Baseline: CSU

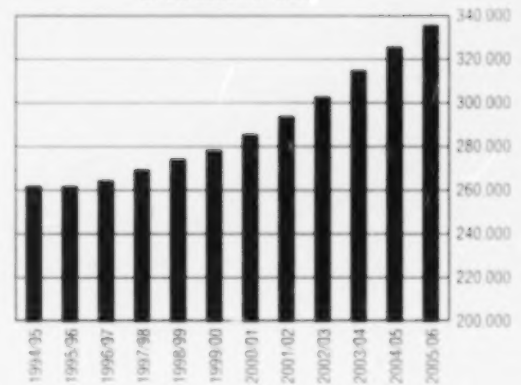


Figure 3
CPEC Baseline: UC

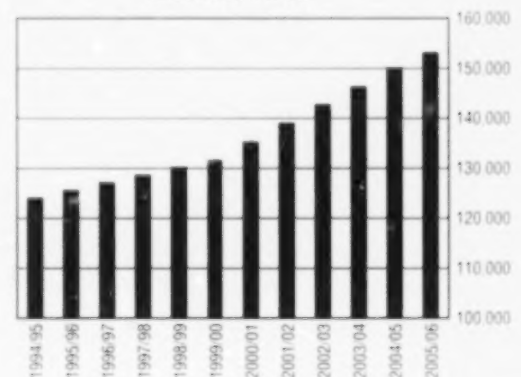


Table 2
CPEC 1994 Baseline Projections vs.
Actual Undergraduate Enrollments

University of California			
Fall	Projection	Actual	Difference
1994	123,873	121,940	-1.56%
1995	125,404	123,948	-1.16%
1996	126,936	126,260	-0.53%
1997	128,468	128,976	0.40%
California State University			
Fall	Projection	Actual	Difference
1994	261,508	258,960	-0.97%
1995	261,474	264,023	0.97%
1996	264,042	272,642	3.26%
1997	268,894	276,054	2.66%
California Community Colleges			
Fall	Projection	Actual	Difference
1994	1,337,085	1,357,615	1.54%
1995	1,355,358	1,336,300	-1.41%
1996	1,374,562	1,407,335	2.38%
1997	1,435,063	1,453,000*	1.25%

* Recent estimation

much as a predictor of enrollment, but as a way of identifying how California's investment in higher education had fallen short of Master Plan goals.

Of course, it is not just the economy that affects student enrollment levels; the state and the segments can respond in different ways to changes in revenue. The early 1990s reflected the policy responses that higher education institutions normally make in times of duress: enrollment was reduced, courses were cancelled and fees were sharply increased. The extent of the reductions can be eased by policies that promote productivity and result in additional spaces for students. Conversely, institutions may opt to maintain or even increase unit costs, decreasing access at a rate that is disproportionate to the rate by which funds have been reduced.

Figure 4 displays the change in enrollment as a percentage of total enrollments by segment. Note that the timing of the large-scale swings matches changes in economic conditions and policy decisions that were independent of student demand for higher education services. For example, the

sharp declines in community college enrollments, where the variation is greatest, occurred with: the passage of Proposition 13 in the late 1970s; grading policy changes, the elimination of funding for avocational and recreational courses, and the first-time imposition of tuition in the early 1980s; and the elimination of support for courses enrolled in by bachelor degree recipients and the recession of the early 1990s.

Besides the economy and policy decisions, both of which affect the capacity of institutions to provide opportunity, there are two major variables that drive enrollments in higher education: the pool of students (i.e., the number of high school graduates and the size of various age groups, particularly the 18 to 24 year old cohort for UC and CSU) and participation rates (i.e., the percentages from those pools who enter higher education). For each of the three segments, different assumptions are made about the pools.

The major difference between the UC and CPEC enrollment projections concerned assumptions about participation rates. In its 1994 projections the university expressed skepticism about an overall increase in participation rates as well as participation rate increases among the historically underrepresented African-American and Latino students. The university's earlier projections also expressed doubt that the decline in the numbers of high school graduates had bottomed out. CPEC argued for modest increases in overall participation rates,

particularly for historically underrepresented populations. In fact, participation rates in the university have improved steadily since bottoming out in 1993.⁶ The university has subsequently altered its 1994 projections to display the increase in participation rates and the growth in the high school cohort generated by in-migration to the state, which has once again increased as the economy has improved. These latest, though unofficial, UC projections show a growth rate that is close to—and actually slightly higher than—the CPEC 1994 baseline projections.

The community colleges' latest projections reflect a reduction of some 83,000 students from their earlier projections. These numbers are closer to the 1994 CPEC baseline projections, but are still higher by about 73,000 students.

The California State University utilizes the CPEC projections and has not updated its projections.

In sum, the adjustments made by both UC and the community colleges, the two segments that have developed independent updated projections, are now converging with the CPEC 1994 baseline projections.

Updated Projections

CPEC has not completed a new set of projections but is currently planning to re-vamp its projections in 1999. At that time, CPEC will consider adopting a less resource-intensive methodology, which would allow the commission to publish revisions every year or two. The segments update their projections (unofficially, at least) to reflect the latest revisions from the Department of Finance Demographic Research Unit (DRU).

DRU, which is mandated to "analyze and prepare projections of enrollments in public schools, colleges or universities," provides the official state projections used for annual budgetary and capital outlay expenditure patterns. Each year, the unit updates its ten-year projections of enrollments for each of the three segments of public higher education.

The centerpiece of the DRU projections is the cohort of graduates in any given year. Graduation data and projections are updated annually. Transfer rates are calculated from rates developed from the cohort's relationship to population by enrollment level (i.e., freshmen, sophomores, juniors, seniors), age group and gender. Historical rates are analyzed, projected and applied to the projected population to calculate future numbers of transfer students. DRU limits the population studied to those age groupings (in five-year increments) that

Figure 4
Percent Change in Enrollment

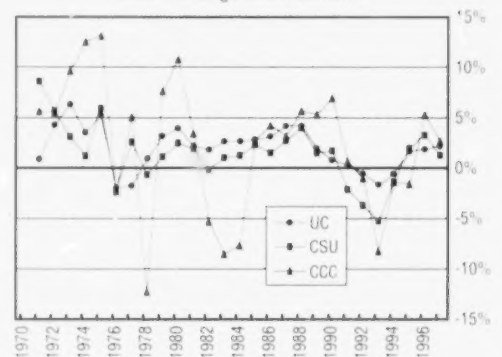


Table 3

**Comparison of Undergraduate
Enrollment Projections,
DRU's 1994 and 1997 Series**

California Community Colleges		
Year	1994 Series	1997 Series
1994-95	1,400,000	1,357,615
1999-00	1,522,100	1,518,385
2005-06	1,717,800	1,765,263
Difference for 2005-06		47,463
Difference as a Percent		2.69%
California State University		
Year	1994 Series	1997 Series
1994-95	250,600	258,960
1999-00	270,600	296,813
2005-06	334,300	355,308
Difference for 2005-06		21,008
Difference as a Percent		5.91%
University of California		
Year	1994 Series	1997 Series
1994-95	121,800	121,940
1999-00	131,100	135,985
2005-06	153,100	156,315
Difference for 2005-06		3,215
Difference as a Percent		2.06%
Total: All Segments		
Year	1994 Series	1997 Series
1994-95	1,772,400	1,738,515
1999-00	1,923,800	1,951,183
2005-06	2,205,200	2,276,886
Difference for 2005-06		71,686
Difference as a Percent		3.15%

Source: Department of Finance

are most likely to attend the higher education segments. The range differs by segment: for the community colleges the range extends from under 19 through age 64; for undergraduates at UC and CSU, from 24 and younger up to 49; and for graduates, from 24 to 59. Long-term rates are generally projected by extending historical rates or by calculating an average of historical rates. Choice of rates is based upon the strength of the trends and upon what is known about future conditions affecting rates. Each year, DRU derives several projections using the most recent, the highest, and the lowest rates over the past ten years. The range of these projections provides a context for evaluating the official enrollment projection. The "art" of enrollment projections lies in the selection of the alternatives. Department staff members argue that applying their experience and judgement about the appropriate weight given to each of the "trends" is an important part of their methodology. This method, they claim, is preferable to selecting a single set of assumptions that would not reflect as accurately the likelihood that the trends would continue.

Table 3 compares DRU's 1994 and 1997 projections. The 1997 estimates reflect a modest increase over the unit's own 1994 projections, and over CPEC's 1994 projections. Whereas CPEC's 1994 baseline figures projected a total increase in public higher education enrollment to be about 488,000 from 1994-95 to 2005-06, DRU's 1997 series projects an increase of about 538,000 students over the same period.

In fall 1996, California's total postsecondary enrollment rose 4.7 percent, reversing a four-year decline. Enrollments continued to increase in fall 1997 but at a lower rate. The principal assumptions that drive DRU's projections include:

Community Colleges

The 1997 Department of Finance projections assume that participation rates over the next 10 years: will increase for community college students ages 19 and under; will remain the same for those ages 20 to 29; and will increase modestly for those older than 29. These estimates reflect the recent growth in numbers of first-time freshmen in the community colleges.⁷ First-time freshmen are more likely to be full-time students and more likely to be enrolled in credit courses.

California State University

The Department of Finance projects gradually increasing transfer rates for CSU juniors over the ten-year period, reflecting the increased absolute number and participation rates of community college students who are expected to enroll in the community colleges right out of high school. The transfer rate among these younger students is expected to be higher than among older students.

Assumptions about transfer rates take on growing importance since more than four of every five transfer students in CSU come from community colleges.⁸

Well over half (55.7%) of all CSU graduates are community college transfers.⁹

University of California

Participation rates at UC declined from 1986 to 1993 but have risen since and are now expected by the Department of Finance to rise to the average rates of the last decade.¹⁰ Transfer rates are expected to increase for juniors but at about half the rate of growth experienced in the last decade.¹¹ Transfers have become a more important part of the university's enrollment pattern; almost one in three UC graduates is a community college transfer.¹² Significantly larger numbers of Asian-Americans have opted for the transfer route; Asian-American transfers are up 145% since 1989-90. Latino transfers to the university have increased 71% over the same period.¹³

In sum, the following conditions account for most of the recent changes in the enrollment projections: a growing high school cohort; the bottoming out of the decline in the 18 to 24 year old cohort; increasing participation rates; and increasing transfer rates. The baseline 1994 projections by CPEC are very close to actual enrollment. In fact, CPEC's projections were slightly conservative in projecting enrollments for each of the segments and for higher education generally. Department of Finance projections, which in 1994 were very close to the CPEC baseline projections for 2005-06, have now been increased by over 71,000 students for all three segments, bringing the total enrolled to 2,276,886, a figure that is about 65,000 higher than the total number projected by CPEC—a modest but not insignificant alteration.

How the Cohorts Have Changed

Not only have the sizes of the cohorts changed, but their characteristics are changing as well. In particular, high school graduates continue to increase their chances of attending college. The class of 1997 was the largest in over 20 years.

Table 4

**1996-97 Performance Rates for California's High Schools:
Two-Year and Four-Year Growth**

	Rate 4 Years Ago	Rate 2 Years Ago	Current Rate	4-Year Growth	2-Year Growth
Students staying in school: 4-year completion rate*	81.0	82.9	87.0	6.0	4.1
UC/CSU course completions	N.A.	32.1	35.4	N.A.	3.3
SAT I/ACT scores above national average per 100 students	19.7	20.0	20.6	0.9	0.6
AP/International Baccalaureate scores qualifying for college credit per 100 juniors and seniors	10.0	11.3	13.0	3.0	1.7
State public college attendance: UC, CSU, and CCC**	47.4	49.4	51.5	4.1	2.1
Total college attendance: California public college, private, and out-of-state attendance	55.0	57.6	59.6	4.6	2.0

* Current rate based on 1996-97 dropouts

** Current rate based on 1995-96 graduates

Source: California Department of Education, August 1998

In addition, more students are preparing themselves for college by taking and completing college preparatory curricula. The number and percentage of graduates who have successfully negotiated the courses required for admittance to UC or CSU have increased over the last decade, even as requirements have gotten more rigorous. The percentage of California high school students taking and successfully completing Advanced Placement (AP) courses is at an all-time high and has increased by 48% since 1990.

While all racial groups showed an increase in completing AP courses, the largest percentage growth occurred among Asian-Americans, Latinos and blacks.¹⁴ Between 1990 and 1996, test-taking for college admission also increased—by about 20%. Not only were more students taking the SAT I, but scores were stable or up slightly. Greater growth (on a smaller base) was shown for the ACT examination; the numbers of students taking the test grew by 77% from 1990 to 1996. In spite of the increase in test takers, the test scores remained relatively unchanged. Growth was greatest for blacks and Latinos. Table 4 displays recent high school performance data documenting changes in these trends.

In sum, on many of the criteria that play a significant role in determining admission to UC or CSU—high school graduation rates, completion rates of college preparatory courses, completion rates of Advanced Placement courses, and college test-taking rates—larger percentages of a growing cohort of high school students have been meeting higher expectations.

Is This a Tidal Wave?

The 1994 CPEC baseline enrollment projections, which this panel recommended three years ago, have turned out to be conservative, at least through 1997. The question remains, however, do the increased enrollments constitute a tidal wave of new students? The Legislative Analyst Office, in a provocative report to the

legislature entitled *Higher Education Enrollments: Is a Tidal Wave Coming?*, answered with a resounding no. The report argues that even the highest projections of enrollment growth—the Department of Finance's 1997 series projections—do not match the high growth periods of California's past. The original use of the tidal wave metaphor occurred in response to pre-recessionary projections, which indicated that California enrollments in higher education would increase by some 750,000 students early in the next century. Plans were afoot to build from 15 to 22 new campuses to accommodate this phenomenal growth. The impact of the recession, however, virtually eliminated the possibility of growth of that magnitude, and projections in the mid-1990s modified that growth to less than 500,000. The Department of Finance's recent revisions project an increase of about 538,000.

The Analyst presented an alternative lower set of enrollment projections for legislative consideration. These projections assumed constant participation rates based on 1996 rates. The projections by the Department of Finance and CPEC are, respectively, about 12% and 9% higher than the Analyst's projections. About 75% of the discrepancy between the department and the Analyst can be explained by a combination of DRU's use of more recent data regarding high school graduates, and different assumptions regarding community college participation rates. Since the community colleges comprise such a large portion of total undergraduate enrollment in the state, any differences in assumptions about participation rates at the community colleges will have a large impact on the estimates. The most recent Department of Finance projections reflect the increase in participation rates for community colleges and both four-year segments.

The Analyst's projections are not dissimilar from those of the "low alternative" projections offered by CPEC in 1994. The Analyst's report reiterates points this panel made in its earlier paper: that assumptions drive the projections and that policy decisions by the legislature and the segments can effectively determine enrollment.

Among the Analyst's recommendations are: more frequent enrollment projections by CPEC; annually published, updated projections by each of the segments; and a more public and open debate about assumptions underlying the estimates, and about policy options the legislature and the segments face in attempting to control enrollment.

Reduced to its essentials, the Analyst's report emphasizes two points: first, that the projections by DRU and CPEC are too high, and secondly, that even if the projections were correct, they would not constitute a tidal wave. On both issues we disagree. The recent actual enrollment trends are consistent with

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Department of Finance and CPEC projections. Further, the assumptions behind these projections, which forecast slight increases in participation rates, are more consistent with current experience and state policy. In fact, were the Analyst's Office to update their projections to include the most recent data, their numbers would begin to converge with the other two sets of projections. Of course, the Analyst is correct in assuming that these numbers are not absolutes and that the legislature can adopt policies which "control" growth. Many of the suggestions the Analyst makes deserve the kind of review called for and would constitute a part of the increasing efficiency that we find necessary to accommodate the growth. The approach our panel has emphasized is to identify the pool of students likely to be seeking higher education opportunities in the future. The evidence continues to mount that those numbers will grow, and at a higher rate than projected in our earlier report.

The Analyst's second major point is that the tidal wave analogy is overblown. On this we also disagree. Recent experience has shown that the increase projected in 1994 by CPEC—488,000 more students by 2005-06—is probably understated; a figure approaching 540,000 is more likely. Enrolling this many new students in a state that is unlikely to build large numbers of new campuses is a formidable task that has implications approaching tidal wave proportions. Without a combination of careful state planning and support, increased segmental efficiencies, and increased contributions from parents and students, these more than half-a-million students indeed threaten to swamp California's system of higher education. If these students are not provided the opportunity to enroll, then the Master Plan, which for our purposes is still the guiding state policy, will no longer continue to be a reality.¹⁵

Conclusions

The state's remarkable economic recovery has allowed California to fund higher education enrollment growth at a rate that has surpassed the CPEC baseline enrollment projections recommended by the panel in 1995. The Department of Finance 1997 series projects a higher growth rate than originally projected by CPEC, increasing the projected number of new students over the decade to about 538,000.

The projections of the two state agencies and the segments are more consistent than in 1994. CPEC and the Department of Finance are developing closer working relationships with each other and with the segments of higher education. CPEC will be making new efforts to update and improve their methodology in order to provide more regular projections. These changes should lead to

even closer estimates in the future. Our re-examination of California's higher education enrollment projections reaffirmed and indeed strengthened our original findings that:

1. Differences in enrollment projections are largely driven by the underlying assumptions.
2. The degree of agreement between the different projections is converging.¹⁵
3. Segmental policies continue to have a significant influence on enrollment patterns for the other segments, and have an immense effect on student "demand."¹⁶

Improving the Accuracy of Projections

Although we continue to be impressed by the general approach taken by the two state agencies primarily responsible for projecting higher education enrollments, there are a number of important improvements that can be made.

1. The Department of Finance projections of high school graduates is a critical part of the data used to project higher education undergraduate enrollments. Much of that work is dependent on the quality of the California Basic Education Data System (CBEDS). The system, which relies on teachers to report student attendance and to identify students by race and ethnicity, is of uneven quality. While there have been some improvements in CBEDS data, it is time for the Department of Education to carefully review its accuracy and take steps to improve it further.

The grade progression ratios the department uses are essential for arriving at the number of graduates projected for the future. Two issues arise out of an examination of the data. First, there is a very large and growing number of students who don't enroll in kindergarten five years after birth or in first grade six years after birth. These numbers are important since they drive much of the rest of the model. There is a lot of speculation about what happens to these students, but very little beyond speculation. This is an important data gap that needs to be examined in some detail. Secondly, in the ninth grade a reverse data problem occurs. Between grades eight and nine, a large number of students suddenly appear in the system, far exceeding the cohort from the prior year. Again, one can speculate about the numbers, but it is important for the accuracy of the projections to examine the causes for this apparent discrepancy.

2. It is now virtually impossible to parse out whether recent declines in K-12 en-

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rollments by grade are attributable to out-of-state migration or actual changes in attendance patterns. The extent to which the decline can be attributed to any one cause is still a mystery. CBEDS is the primary tool used by the Department of Finance to project persistence rates annually in elementary and high schools.

In higher education, the situation is no better. Particularly frustrating is the difficulty in following students as they navigate the higher education system. Counting students who are concurrently enrolled in more than one system, or in more than one college within a system, leads to inaccurate estimates of the numbers actually served in higher education. It is incumbent that we begin laying the groundwork for establishing a student identification system to allow the state to follow students as they progress through the school systems and segments. The proposal to assign all children individual student identifiers (e.g., social security numbers) needs to be revived.

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3. The Department of Finance at one time forecasted private elementary and high school enrollments. They no longer do so. The recent growth in attendance at private schools and in home schooling requires a thorough examination of these trends. The numbers are particularly important to the University of California, since a growing portion of its first-time freshmen are drawn from private schools. The Department of Finance, working closely with the Department of Education, should resume its projection series for private K-12 enrollment.

4. Another important data gap occurs in higher education: information reported voluntarily to CPEC by private higher education institutions is woefully inadequate. Private higher education offers an important and growing set of alternatives for meeting the access needs of California's citizens. The state can benefit from additional information about the rapidly growing, easily accessible higher education segments such as the University of Phoenix. CPEC should be funded to improve the quality and quantity of private higher education information, particularly from those institutions that are growing most rapidly. Assessing the capacity of the private colleges and universities to accommodate growth is an important part of the access solution. Currently these data simply are not made available in a systematic way.

5. Community colleges must do a better job of transmitting information to the other segments of higher education. Since CSU is particularly reliant on community college transfers, CSU's ability to project its enrollment needs is severely hampered by the community colleges' failure to provide such information. All

segments, however, need to improve intersegmental data collection and distribution. Virtually every segmental policy impacting admission, fees, and course offerings has an impact on the other segments. If California is to effectively absorb over half-a-million new students in the relatively short term, the degree of collaboration and coordination among segments must be enhanced.

6. The Legislative Analyst makes a strong case for improving the way we assess the current capacity of existing institutions. If the segments were able to accommodate an undergraduate student population at its peak, isn't that the year that should be used for determining capital outlay needs? The fact is we don't know; the data do not tell us much about the adequacy or inadequacy of the level of accommodation. In order to assess the true costs of enrollment growth, more accurate information is needed.

7. While it is too early to make lasting judgements about the impact of Proposition 209 on access to California higher education, it is not too early for the segments to treat this issue in an intersegmental way. No one knows, for example, the impact that will result from the proposal to permit the top 4% of students from each high school to attend the University of California. Equally importantly, we do not know the impact such a policy would have on admissions to the other two segments. Access for historically underrepresented populations must be viewed as a challenge for the entire education system—extending far beyond the segmental boundaries and requiring, as never before, a rethinking of educational policy from preschool to graduate school. Only a pervasive planning effort involving K-12 and all segments of higher education as full partners will fulfill California's commitment to providing every student with equal opportunities for quality education.

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Endnotes

¹ David W. Breneman, Leobardo F. Estrada and Gerald C. Hayward, *Tidal Wave II: An Evaluation of Enrollment Projections for California Higher Education* (San Jose: California Higher Education Policy Center, 1995), p. 4.

² Department of Finance and RAND projections over the same period were very close to CPEC's.

³ Department of Finance, California Public Postsecondary Enrollment Projections, 1997 Series, Undergraduate Enrollments.

⁴ Community colleges, as a part of their Proposition 98 guarantee were already protected by the constitutional amendment that guarantees K-12 and community colleges a percentage of the state general fund. Dividing the funds between the colleges and K-12 is a legislative decision; the guarantee applies to the combined funding. In simple terms, Proposition 98 guarantees that when the economy is doing poorly and cuts in state expenditures are required, there is a floor below which K-12 and community colleges will not be forced to fall. It also insures that when times are opulent, K-12 and community colleges receive not only current revenue growth, but also a large portion of their prior losses. The net result is that community colleges, the hardest hit of the segments during the early 1990s, have received huge infusions of new dollars, arguably the largest percentage increases for any segment in the state's history.

⁵ The highly respected, nonpartisan Legislative Analyst issued a provocative report in early 1998 which asserted that the projected enrollment growth was not of tidal wave proportions and that whatever the extent of the growth, it could be managed by policy changes. The Analyst's projections are quite similar to the CPEC low alternative projections, and vary significantly from the Department of Finance and CPEC in their assumptions regarding participation rates. In a later section, we will discuss the Analyst's report in further detail.

⁶ CPEC, *Student Profiles: 1997*, 3-2.

⁷ CPEC, *Student Profiles: 1997*, 3-13.

⁸ CPEC, *Student Profiles: 1997*, 4-6.

⁹ CPEC, *Student Profiles: 1997*, 5-11.

¹⁰ California Community Colleges Chancellor Tom Nussbaum and University of California President Richard Atkinson have entered into an historic memorandum of understanding committing these two segments to dramatically increase the community college transfer rate to UC over the next decade. The segments are jointly examining policies to improve articulation.

¹¹ Department of Finance, 1997 Series.

¹² CPEC, *Student Profiles: 1997*, 5-4.

¹³ CPEC, *Student Profiles: 1997*, 4-17.

¹⁴ While improving at a faster rate, AP examination-taking patterns for blacks and Latinos still lag far behind their Asian-American and white counterparts.

¹⁵ For a full discussion of the planning options, see the California Higher Education Policy Center, *Shared Responsibility: Strategies for Quality and Opportunity in California Higher Education* (San Jose: 1996).

¹⁶ For a full discussion of these findings, see *Tidal Wave II*, pp. 19-21.

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